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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/005,059	12/03/2001	Andrew B. Goldin	12737-003001	2025

7590 02/27/2004

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EXAMINER

DEBERADINIS, ROBERT L

ART UNIT PAPER NUMBER

2836

DATE MAILED: 02/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/005,059

**Applicant(s)**

GOLDIN ET AL.

**Examiner**

Robert DeBeradinis

**Art Unit**

2836

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 03 December 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 4/3/02
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 576/03
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

The Examiner corrected the Information Disclosure Statement submitted on May 6, 2003. Document number 5,64,002 is not correct. The document number was corrected to number 5,642,002.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 6, 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over O'LEARY 6,137,191 in view of BET-ESH 4,728,808 and MOHAN 5,343,079.

Regarding claims 1, 6.

O'LEARY discloses an interruptible transfer switch coupled to at least two power sources and a load (figure 1) comprising:

A first switch having a first and second end, said first end coupled to a first power source (source 1), said second end coupled to said load (14);

A second switch having a first and second end; said first end coupled to a second power source (source 2), said second end coupled to said load (14);

A control module coupled to said first and second switch, said control module capable of actuating said first and second switch in order to select said power sources received by said load.

O'LEARY does not disclose an inverter for providing power to said load when said control module actuates said first and second switches;

a first rectifier, having a first and second end, said first end coupled to said end of said first switch, said second end of said rectifier coupled to said inverter;

a second rectifier, having a first and second end, said first end coupled to said first end of said second switch, said second end of said second rectifier coupled to said inverter; and

a harmonic cancellation unit comprising a transformer and at least one filter for attenuating system harmonics.

BET-ESH discloses an uninterruptible power supply system comprising input terminals connectable to an AC power source and leading to an AC to DC converter for producing a first DC voltage source, a second DC voltage source operationally connected to said first source, said system supplying at the output of said second source a voltage normally primarily provided by said first source a capacitive accumulator means connected in parallel with a voltage sensing and controlling circuit to supply uninterruptible power to a load (column 1, lines 35-60).

MOHAN discloses a standby power supply with a load-current harmonics neutralizing apparatus for interfacing a critical load with an AC power source, and more particularly to an active harmonic filtering system.

It would have been obvious to one having ordinary skill in the art at the time of this invention to modify O'LEARY to include an inverter for providing power to said load when said control module actuates said first and second switches and a harmonic

Art Unit: 2836

cancellation unit comprising a transformer and at least one filter for attenuating system harmonics. The motivation would be to supply uninterruptible power to a sensitive critical load (MOHAN, column 1, lines 15-18).

Regarding claim 7.

O'LEARY in view of BET-ESH and MOHAN disclose the system as recited in claim 6.

O'LEARY in view of BET-ESH and MOHAN do not disclose wherein the advanced power distribution system includes surge suppressors.

The Examiner takes official notice. The use of surge suppressors to suppress voltage surges is well known in the art.

It would have been obvious to one having ordinary skill in the art at the time of this invention to modify the teachings of O'LEARY in view of BET-ESH and MOHAN to include surge suppressors coupled to the source input. The motivation would be to suppress surges on the source line to protect the load from an over voltage condition.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over O'LEARY 6,137,191 in view of BET-ESH 4,728,808 and MOHAN 5,343,079 in further view of OHSAWA 6,345,309.

Regarding claim 2.

O'LEARY in view of BET-ESH and MOHAN disclose the system as recited in claim 1.

Art Unit: 2836

O'LEARY in view of BET-ESH and MOHAN do not disclose wherein the system further includes a remote monitoring unit coupled to said control module for receiving and transmitting system information and allowing remote control of at least two of the advanced power distribution system variables.

OHSAWA discloses a communication-terminal management system monitors system performance and provides remote control through communication terminal to select power sources (column 10, lines 16-53).

It would have been obvious to one having ordinary skill in the art at the time of this invention to modify O'LEARY in view of BET-ESH and MOHAN teachings to include a communication interface. The motivation would be to remotely input control variables such as reference voltage reference levels to the switch controller (12) to change switching conditions to adapt to changing system parameters.

Claims 3, 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over O'LEARY 6,137,191 in view of BET-ESH 4,728,808 and MOHAN 5,343,079 in further view of BOUDRIAS 6,605,882.

Regarding claims 3, 4.

O'LEARY in view of BET-ESH and MOHAN disclose the system as recited in claim 1.

O'LEARY in view of BET-ESH and MOHAN does not disclose transformer configurations which include a zig-zag configuration or a delta configuration.

BOUDRIAS discloses a zig-zag transformer that is delta-wye wired to mitigate certain current and voltage harmonics (column 2, lines 35-50).

It would have been obvious to one having ordinary skill in the art at the time of this invention to use a zig-zag configured transformer that is delta wye configured. The motivation would be to mitigate harmonic frequencies generated in a load wired in a delta-wye configuration.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over O'LEARY 6,137,191 in view of BET-ESH 4,728,808 and MOHAN 5,343,079 in further view of PELLY 2004/0004514.

Regarding claim 5.

O'LEARY in view of BET-ESH and MOHAN disclose the system as recited in claim 1.

O'LEARY in view of BET-ESH and MOHAN does not disclose wherein said filter comprises a common mode filter connected to the neutral bus of said transformer and a differential filter connected to the secondary winding of said transformer.

PELLY discloses active filter for reduction of common mode current the active filter including capacitor 47 defines a path for diverting the majority of the common mode current which can otherwise flow through the phases (paragraph 16).

It would have been obvious to one having ordinary skill in the art at the time of this invention to modify the teachings of O'LEARY in view of BET-ESH and MOHAN to include a common mode filter connected to the neutral bus of said transformer and a differential filter connected to the secondary winding of said transformer. The motivation would be to reduce the common mode current flowing into the load.



Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over O'LEARY 6,137,191 in view of BET-ESH 4,728,808 and MOHAN 5,343,079 in further view of SHIRES 5,311,419.

Regarding claim 8.

O'LEARY in view of BET-ESH and MOHAN disclose a first switch means, a second switch means, a control means for activating said first and second switches, an inverter, a first rectifier, a second rectifier and a harmonic cancellation means (see claim 1 rejection).

O'LEARY in view of BET-ESH and MOHAN does not disclose an inductor means for electrically isolating said sources and inverter means during switching of power from one power source to another, said inductor means coupled to said load, said first and second switch, and said inverter.

SHIRES teaches line inductors provide series impedances to improve the attenuation of high frequencies (column 6, lines 56, 57).

The Examiner takes official notice. The switching means generates high frequencies when switching the sources from one source to the other source.

It would have been obvious to one having ordinary skill in the art at the time of this invention to modify the teachings of O'LEARY in view of BET-ESH and MOHAN to include an inductor means for electrically isolating said sources and inverter means during switching of power from one power source to another, said inductor means coupled to said load, said first and second switch, and said inverter. The motivation

Art Unit: 2836

would be to suppress the high frequencies generated during switching from one source to the other.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over O'LEARY 6,137,191 in view of BET-ESH 4,728,808 and MOHAN 5,343,079 in further view of DANG 4,916,329.

Regarding claim 9.

O'LEARY in view of BET-ESH and MOHAN disclose:

Monitoring power quality of a preferred power source and an alternate power source;

Determining from a predefined set of power quality variables that the power quality from the primary source has degraded to an unacceptable level;

Opening all switches that route the primary power source to the load;

Supplying power to the load from the inverter at the time that the primary power source is disconnected from the load so that no appreciable power loss occurs on the load;

Closing the switch that routes power from the alternate power source to the load;

Taking the inverter off line so that the load receives power from the alternative power source without appreciable power loss on the load; and attenuating harmonic frequencies in a transformer and filter to improve power quality provided to said load (see claim 1 rejection).

Art Unit: 2836

O'LEARY in view of BET-ESH and MOHAN do not disclose slewing amplitude and phase of power provided to the load so that it substantially matches the amplitude and phase of the alternative power source.

DANG teaches the AC input frequency synchronizes the phase of a precision sine wave signal with the phase of the AC input signal (abstract) and the phase locked loop phase shifts the inverter to match that of the line source (column 5, lines 10-15).

It would have been obvious to one having ordinary skill in the art at the time of this invention to modify the inverter to slewing amplitude and phase of power provided to the load so that it substantially matches the amplitude and phase of the alternative power source. The motivation would be to synchronize the inverter with the voltage source to provide uninterruptible power to a critical load.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over BOUNDRIES 6,605,882 in view of PELLY 2004/000451.

Regarding claim 10.

BOUNDRIAS discloses a harmonic cancellation unit for attenuating harmonic frequencies in a power distribution system comprising:

A filter coupled to said neutral bus (Xo) of said transformer for attenuating at least the 3<sup>rd</sup> harmonic (column 1, line 28);

A filter coupled to a secondary winding of a transformer for attenuating at least one odd harmonic greater than 3<sup>rd</sup> harmonic.

BOUNDRIES does not disclose a transformer having a single secondary winding.

Art Unit: 2836

PELLY teaches a transformer having a single secondary winding (44).

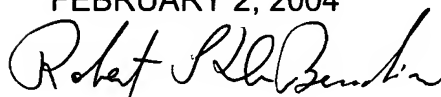
It would have been obvious to one having ordinary skill in the art at the time of this invention to modify the teachings to BOUNDRIES to include a transformer having a single secondary winding. The motivation would be to provide a single phase harmonic mitigation device.

Any inquiry concerning this communication should be directed to Robert L. DeBeradinis whose number is (703) 306- 5857. The Examiner can normally be reached Monday-Friday from 8:30 am to 5:00 pm.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Brian Sircus, can be reached on (703) 308-31190. The Fax phone number for this Group is (703) 308-7722.

RLD

FEBRUARY 2, 2004

A handwritten signature in cursive script, appearing to read "Robert L. DeBeradinis".